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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/437,004

11/09/1999

STEPHEN CREANEY

1749/261

7396

826

7590

03/28/2003

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EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/437,004

Applicant(s)

CREANEY ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoneyama (U.S. Patent No. 5,801,860).

Regarding Claim 1, Yoneyama teaches a data communications link comprising a data transmitter station (reference numeral 20 in Figure 5) coupled by an optical communications channel (reference numeral 40 in Figure 5) to a data receiver station (reference numeral 30 in Figure 5), wherein the data transmitter station includes a multipower-level optical source connected to receive data words n digital bits and arranged to encode the bits of each word into one of m optical power levels (column 1 lines 31-39, column 5 lines 45-51), the multi-power-level output signal of the optical source being transmitted along the optical communications channel to the data receiver station, said data receiver station including a data-decoding receiver arranged to receive and decode said multi-power-level optical signal into n bit digital words (inherent in reference numeral 33 in Figure 6), and wherein said receiver station further comprises a received-signal condition monitor (reference numeral 39 in Figure 6) coupled by a control channel (reference numeral 80 in Figure 5, 6) to a control device (reference numeral 24 in Figure 7) located in the data transmitter station, said condition monitor being arranged to sense the level of a predetermined characteristic of the signal received by the data-decoding receiver

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and consequently to transmit a control signal along the control channel to the control device, said control device being adapted to control the power output of the optical source consistent with achieving a predetermined sensed level of said predetermined characteristic (column 3 lines 11-46).

Regarding Claim 4, Yoneyama teaches a data communications link as claimed in claim 1, wherein the control channel is a serial binary digital optical channel (as seen in Figure 16 column 11 lines 50-54, column 12 lines 57-61).

Regarding Claim 5, Yoneyama teaches that the bandwidth of the optical communication channel is the same as or greater than that of the control channel (since the transmitter and receiver of the communication channel and the transmitter and receiver of the control channel are identical).

Regarding Claim 6, Yoneyama teaches a data communications link as claimed in claim 1, wherein the optical source is a laser (column 5 lines 44-45) or LED (column 18 lines 27-33) and the drive current supplied to the optical source is tailored to the characteristic of the source (i.e. via power controller) for individually adjusting the current drive levels such that each of the optical power levels is sufficiently separated from the levels above and below it (as seen in Figure 4) for the receiver to quantize each level and maintain an adequate bit error rate, thus accommodating non linear source output power versus drive current characteristics.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneyama (U.S. Patent No. 5,801,860).

Regarding Claim 2, Yoneyama teaches a data communications link as claimed in Claim 1, wherein the predetermined characteristic is the DC level or the average optical power level of the signal received by the receiver (as discussed above), but differs from the claimed invention in that Yoneyama fails to specifically teach that the sensed level is compared against a control or reference level to establish a difference and the arrangement is such that the control signal attempt to null that difference or at least to keep the difference within narrow predetermined limits. However, one skilled in the art would clearly have recognized that in order to establish accomplish the control means described by Yoneyama, one would have compared the sensed level against a control or reference level in order to determine the amount of power adjustment at the transmitter. Furthermore, the teachings of Yoneyama would have suggested to one skilled in the art that the sensed level is compared to a control or reference level since Yoneyama teaches that a predetermined level at the receiver is achieved and maintained, thereby suggesting a comparison to a control or reference level of the previous iteration of power sensing and control. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have compared the sensed level against a control or reference level in order to establish a difference in order to null the difference or at least to keep the difference within narrow predetermined limits as suggested by the limitations of Yoneyama.

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Regarding Claim 3, Yoneyama teaches the limitations of claim 1, but differs from the claimed invention in that Yoneyama fails to specifically teach the predetermined characteristic is the individual - bit content of a multibit test word transmitted at preselected times the condition monitor being preprogrammed with the bits of the test word against which the individual bits of the transmitted test word are compared and in the event of a difference the control signal is arranged to increase or decrease the power output of the transmitter in order to reduce the error. However, one skilled in the art would clearly have recognized that it would have been beneficial to transmit a multibit test word to be received and compared at the receiver with a stored multibit word to determine any differences in the transmitted word and the received word, thereby providing a means for determining the amount of power adjustment at the transmitter. Transmission of test signals for determining the effect of the transmission medium on the test signals to thereby derive a control signal is well known in the art and would have been obvious to one skilled in the art in view of the teachings of Yoneyama at the time the invention was made.

Response to Arguments

5. Applicant's arguments filed 1/17/03 have been fully considered but they are not persuasive. The applicant argues that the instant application is patentably distinct from the Yoneyama reference. However, the examiner disagrees. That the transmitter of Yoneyama is incorporated into a WDM system is inconsequential being that the applicant makes no limitation in the claim to a single wavelength system. Given the broadest reasonable interpretation, Yoneyama clearly teaches a data transmitter station (reference numeral 20 in Figure 4) including a multi-power level optical source (reference numeral 22-1 in Figure 7, only one being required)

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connected to receive data words (reference numeral 21-1 through 21-m in Figure 5) of n digital bits and arranged to encode the bits of each word into one of m optical power levels (each laser operating at a different power level depending on the feedback from the receiving end). The transmitter station of Yoneyama is provided with m lasers, each laser operating at a distinct power level, the power level being determined from feedback from the reception end. Each of the multi-power lasers m receives data words (reference numeral 21-1 through 21-m in Figure 5) which are then encoded (e.g. modulated) onto an optical carrier. The applicant makes no clear claim limitation that only a single multi-power level optical source operating at a single wavelength exists in the system, nor does the applicant make a distinction between the data transmitter station and the multi-power source. Therefore, given the broadest reasonable interpretation, the data transmitter station of Yoneyama need only include a multipower source *and* receive data words which are encoded into one of m power levels, a function provided by the plurality of multi-power sources in the data transmitter station.

In reply to applicant's argument that the system of Yoneyama does not include a data decoding receiver, the data decoding receiver arranged to receive and decode the multi-power optical signal into n bit digital words, the applicant is directed to Figure 6 which shows a data decoding receiver (33), the data decoding receiver arranged to receive and decode the multi-power optical signal into n bit digital words (31).

6. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., data encoded by a multipower source on a single wavelength) are not recited in the rejected claim(s).

Although the claims are interpreted in light of the specification, limitations from the specification

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are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakai, Takamatsu, and Dugan teach feedback control systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

AB

March 11, 2003



JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600